

Z+Jet

The figure displays the distribution of Thrust λ_2^1 (CMS jet substructure) for CMS data and Herwig++/Herwig 7.2.1 models. The x-axis represents the Thrust λ_2^1 on a logarithmic scale from 0 to 1. The y-axis represents the distribution $dN/d\ln \lambda_2^1$ on a logarithmic scale from 1000 to 10000.

The top panel shows the distribution $dN/d\ln \lambda_2^1$ for CMS data (black squares) and Herwig++ 2.6.3 default (orange dashed line with circles) and Herwig 7.2.1 default (green dashed line with squares) models. The CMS data shows a sharp peak at low Thrust values, while the models show a broader distribution. The Herwig 7.2.1 default model provides a better fit to the CMS data than the Herwig++ 2.6.3 default model.

The middle panel shows the ratio of the models to the CMS data, Ratio to CMS , on a linear scale from 0.5 to 2. The Herwig++ 2.6.3 default model (orange) shows a ratio significantly below 1, while the Herwig 7.2.1 default model (green) shows a ratio closer to 1.

The bottom panel shows the ratio of the models to the CMS data, Ratio to CMS , on a linear scale from 0.5 to 2. The Herwig++ 2.6.3 default model (orange) shows a ratio significantly below 1, while the Herwig 7.2.1 default model (green) shows a ratio closer to 1. A yellow band indicates the uncertainty of the ratio.

Source: CMS_2021_I1920187, mcplots.cern.ch [arXiv:1306.3436], Rivet 3.1.10, $\geq 400k$ events

Rivet 3.1.10, $\geq 400k$ events

mcplots.cern.ch [arXiv:1306.3436]

2

1

0.5

thrust